



17 November 2020

ASX ANNOUNCEMENT

Mining Leases granted for Arrowsmith Silica Sand Projects

Highlights:

- **Mining Leases granted for Arrowsmith North and Central Silica Sand Projects**
- **Combined Arrowsmith Mining Lease grant area of over 3,600ha supports +100-year mine life**
- **Arrowsmith North Mining Lease area contains Probable Ore Reserve of 204Mt @ 99.7% SiO₂**
- **Arrowsmith Central Mining Lease area contains Probable Ore Reserve of 18.7Mt @ 99.6% SiO₂**
- **Clears development for Muchea and Arrowsmith Projects with a combined post-tax NPV₁₀ of \$728m**

VRX Silica Limited (**VRX** or **Company**) (ASX: VRX) is pleased to announce the grant of Mining Leases for its Arrowsmith North Silica Sand Project (**Arrowsmith North**) and Arrowsmith Central Silica Sand Project (**Arrowsmith Central**), located approximately 270km north of Perth, Western Australia.

The combined Mining Lease areas cover over 3,600ha, sufficient for over 100 years of production.

VRX's Managing Director Bruce Maluish said: "The grant of Mining Leases for our Arrowsmith Silica Sand Projects is another significant milestone for VRX Silica, hot off the heels of the Mining Lease granted for our Muchea Silica Sand Project.

"As for Muchea, there is strong demand for Arrowsmith sand and we will now look to finalise sales contracts for high-quality silica sand products and secure the necessary funding for the development of these projects.

"All three projects have outstanding economic prospects and will support a substantial export industry in Western Australia providing significant financial and employment benefits to the State.

"With all three Mining Leases granted and development of our projects on-track, VRX Silica is truly a global player in high-quality silica sand supplies."

ASX: VRX

Capital Structure

Shares on Issue:
445.1 million

Listed Options:
23.9 million

Unlisted Options:
69.5 million

Corporate Directory

Paul Boyatzis

Non-Executive Chairman

Bruce Maluish

Managing Director

Peter Pawlowitsch

Non-Executive Director

John Geary

Company Secretary

Silica Sand Projects

Arrowsmith Silica Sand Project, 270km north of Perth, WA.

Muchea Silica Sand Project, 50km north of Perth, WA.

Boyatup Silica Sand Project, 100km east of Esperance, WA.

The Company is actively assessing other silica sand projects in Australia.

VRX Silica Limited

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Aggregate Project Metrics

Key outcomes and summary financial model outputs for each individual project, and in aggregate, from the bankable feasibility studies (**BFSs**) for each project¹ are set out below. The combined post-tax NPV₁₀ of \$727.8 million

	Arrowsmith North	Arrowsmith Central	Muchea	Total
Post Tax, ungeared NPV ₁₀	\$242.3m	\$147.6m	\$337.9m	\$727.8m
Post Tax, ungeared NPV ₂₀	\$99.8m	\$56.1m	\$146.4m	\$302.3m
Post Tax, ungeared IRR	79%	60%	96%	83%
Payback period (yrs) (post tax) (ramp up rate)	2.4	2.8	2.3	2.4
Exchange Rate US\$/A\$	\$0.70	\$0.70	\$0.70	\$0.70
Life of Mine (yrs) (Scope of BFS Study)	25	25	25	25
Total Sales (initial 25 years) no escalation	\$2,773m	\$2,167m	\$3,345m	\$8,285m
EBIT	\$1,144m	\$737m	\$1,540m	\$3,421m
Cashflow after finance and tax	\$835m	\$539m	\$1,123m	\$2,497m
Capex (2 mtpa)	\$28.3m	\$25.9m	\$32.8m	\$87m
Capex contingency (inc)	20%	20%	20%	20%
Life of Mine C1 costs, FOB Kwinana (inc royalties)	\$30.18	\$27.67	\$32.74	\$30.24
Tonnes Processed (initial 25 years) (Mt)	53	51	54	158
Production Target (Mt) (BFS Study) (initial 25 Years)	47.7	39.6	48.3	136
Probable Ore Reserves (Mt)	204	18.9	18.7	242
Ore Reserve life (yrs)	102	10	9-10	
JORC Resources (million tonnes)	771	77	208	1,056

Notes:

1. A proportion of the production target for each of Arrowsmith Central and Muchea is based on Inferred Mineral Resource. There is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised.
2. The Ore Reserves and, in the case of Arrowsmith Central and Muchea, the Inferred Mineral Resource underpinning the above production targets have been prepared by a Competent Person in accordance with the requirements of the JORC Code.
3. Full summaries of economic assumptions are set out in the BFS for each project. All such material assumptions continue to apply and have not materially changed from the dates of release of the BFSs.
4. All figures are presented in Australian dollars, unadjusted for inflation

¹ ASX announcements of 28 August 2019, "Arrowsmith North BFS and Maiden Ore Reserve", 17 September 2019, "Arrowsmith Central BFS and Maiden Ore Reserve" and 18 October 2019, "Muchea BFS and Maiden Ore Reserve".

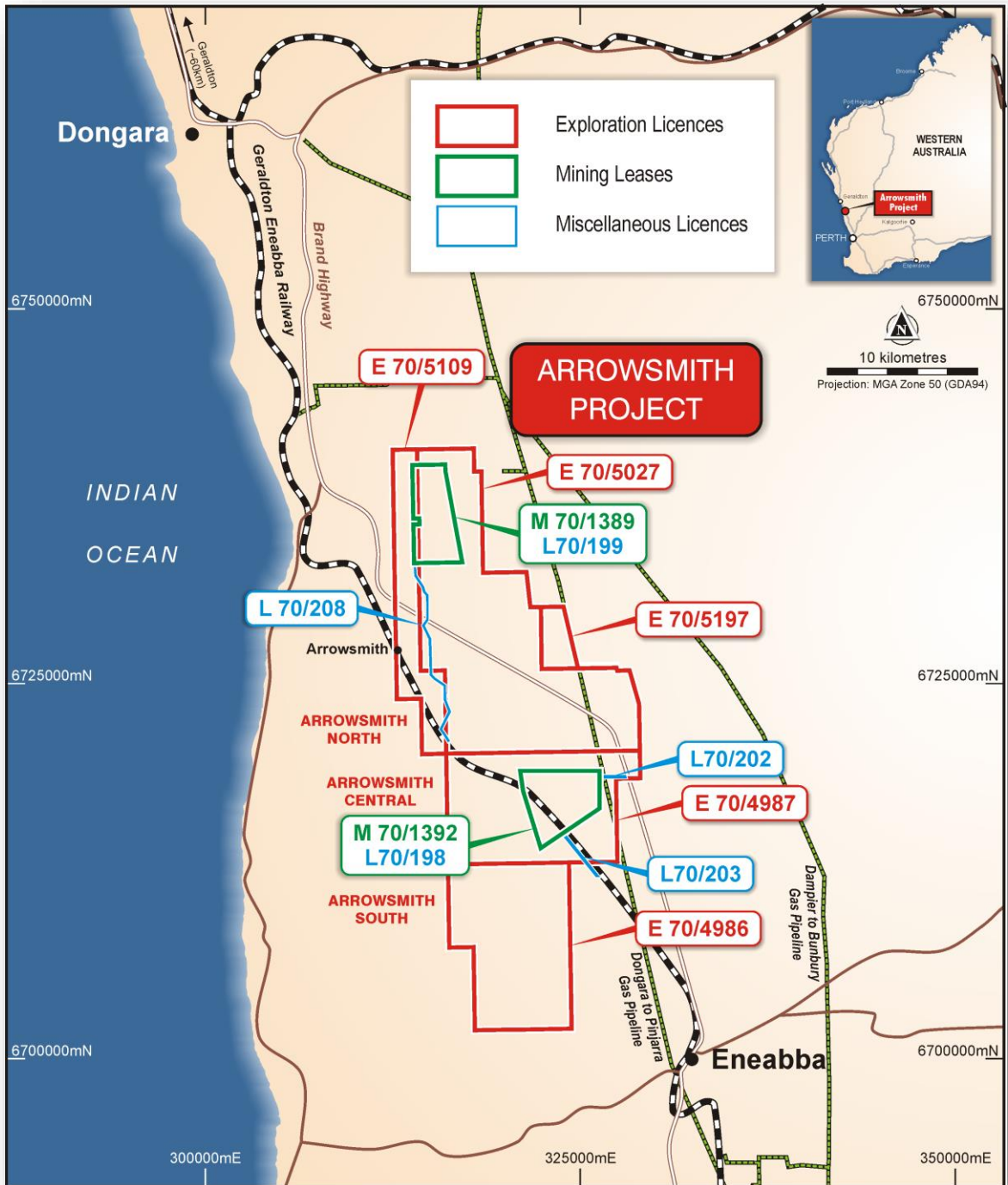


Figure 1: Location and plan of the Arrowsmith Silica Sand Projects

ARROWSMITH NORTH

Project Location

Arrowsmith North is located approximately 270km north of Perth between the regional Western Australian towns of Eneabba and Dongara (see Figure 1). The project sits proximate to Brand Highway and is connected to the Geraldton Port via the Eneabba-Geraldton Railway.

Mineral Resource and Ore Reserve

The Mineral Resource Estimate (MRE) for Arrowsmith North comprises an **Indicated Mineral Resource** of **248 Mt @ 97.7% SiO₂** in addition to an **Inferred Mineral Resource** of **523 Mt @ 98.2% SiO₂** for a **Total MRE** of **771 Mt @ 98.0% SiO₂**² reported in accordance with the JORC Code³ (Table 1).

Classification	Domain	Million Tonnes	SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	TiO ₂ %	LOI%
Indicated	White Sand	33	98.7	0.50	0.20	0.20	0.20
	Yellow Sand	215	97.5	1.10	0.40	0.20	0.50
	All Sand	248	97.7	1.00	0.40	0.20	0.50
Inferred	White Sand	280	98.7	0.50	0.10	0.20	0.20
	Yellow Sand	243	97.7	1.00	0.40	0.20	0.50
	All Sand	523	98.2	0.80	0.30	0.20	0.40
Indicated + Inferred	White Sand	313	98.7	0.54	0.15	0.18	0.24
	Yellow Sand	458	97.6	1.08	0.40	0.17	0.52
	All Sand	771	98.0	0.86	0.30	0.17	0.41

**Note: Interpreted silica sand mineralisation is domained above a basal surface wireframe defined based on drill logging data. The upper (Topsoil) layer within 0.5 m of surface is depleted from the modelled silica sand unit, being reserved for rehabilitation purposes. All classified silica sand blocks in the model are reported. Differences may occur due to rounding.*

Table 1: Arrowsmith North Mineral Resource Estimate

The Company completed the necessary work to convert the Indicated Mineral Resource to Probable Ore Reserve⁴. Table 2 details the Probable Ore Reserve reported in accordance with the JORC Code that will be produced from mining of the Indicated Mineral Resource and processing in a purpose-built, wet-sand processing plant.

Chemical Composition			Global	Within M70/1389					
Classification	Product	Recovery	Million Tonnes	Million Tonnes	SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	TiO ₂ %	LOI%
Probable	Arrowsmith-N20	24%	60	54	99.7	0.2	0.05	0.035	0.1
	Arrowsmith-N40/NF500	60%	149	136	99.7	0.2	0.05	0.035	0.1
	Local Market	6%	15	14					
Total Reserve			223	204					

Table 2: Arrowsmith North Probable Ore Reserve

² ASX announcement of 9 July 2019, "Arrowsmith North Mineral Resource Estimate Upgrade"

³ Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 Edition (JORC Code).

⁴ ASX Announcement of 28 August 2019, "Arrowsmith North BFS and Maiden Ore Reserve"

Production Target

The Company has set out in the Arrowsmith North BFS a production target of **47.7Mt** from the first 25 years of mine life at Arrowsmith North, reported in accordance with the JORC Code, sourced from the Probable Ore Reserve of **204Mt @ 99.7% SiO₂** within the Mining Lease (M70/1389) area.

Full details are set out in the Arrowsmith North BFS⁵.

Silica Sand Products

Based on metallurgical test work completed to-date, the silica sand at Arrowsmith North is readily amenable to upgrading by conventional washing and screening methods to produce a high-purity silica sand product with high mass recoveries. The high-purity silica sand product specifications are expected to be suitable for industries such as glass making and foundry sand.

The plant will produce four saleable products for different markets. Table 3 shows the particle-size distribution of the products.

Particle Size	Sieve Opening (Mesh/ μ m Retained)									
	Product	10 / 2mm	20 / 850	30 / 600	40 / 425	50 / 300	70 / 212	100 / 150	140 / 106	200 / 75
Arrowsmith-N20	0.10%	3%	87%	8%	1%	0.10%	-	-	-	21
Arrowsmith-N40	-	0%	21%	36%	24%	13%	5%	1%	0%	36
Arrowsmith-NF500	-	-	0.50%	40%	42%	17%	1%	0%	-	38
Local Market	-	-	-	-	-	-	64%	22%	14%	-

Table 3: Arrowsmith North saleable products, particle size distribution

Permitting

VRX has submitted a formal referral to the Federal Department of Agriculture, Water and Environment (**DAWE**) and will follow with a formal referral to the State Environmental Protection Authority (**EPA**) to secure environmental approvals for the development of Arrowsmith North. Pre-referral meetings with representatives from DAWE and the EPA have provided valuable feedback as to requirements for these referrals.

The Company will also seek to expedite approval for its mine plan and the issue of a mining permit from the Department of Mines, Industry Regulation and Safety (**DMIRS**).

⁵ ASX Announcement of 28 August 2019, "Arrowsmith North BFS and Maiden Ore Reserve"

ARROWSMITH CENTRAL

Project Location

Arrowsmith Central is located approximately 270km north of Perth between the regional Western Australian towns of Eneabba and Dongara (see Figure 1). The project sits proximate to Brand Highway and is connected to the Geraldton Port via the Eneabba-Geraldton Railway.

Mineral Resource and Ore Reserve

The Mineral Resource Estimate (MRE) for Arrowsmith Central comprises an **Indicated Mineral Resource** of **28.2 Mt @ 96.6% SiO₂** in addition to an **Inferred Mineral Resource** of **48.3 Mt @ 96.9% SiO₂**, for a **Total MRE** of **76.5 Mt @ 96.8% SiO₂**⁶ reported in accordance with the JORC Code (Table 4).

Classification	Million Tonnes	SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	TiO ₂ %	LOI%
Indicated	28.2	96.6	1.7	0.4	0.2	0.7
Inferred	48.3	96.9	1.5	0.4	0.2	0.7
Indicated + Inferred	76.5	96.8	1.5	0.4	0.2	0.7

** Note: Interpreted silica sand mineralisation is domained above a basal surface wireframe defined based on drill sampling depths. A depletion zone, consisting of the upper 0.5 m, is reserved for rehabilitation purposes and is not estimated or reported. Differences may occur due to rounding.*

Table 4: Arrowsmith Central Silica Sand Mineral Resource Estimate

The Company completed the necessary work to convert the Indicated Mineral Resource to Probable Ore Reserve. Table 5 below details the Probable Ore Reserve that will be produced from the mining of the Indicated Mineral Resource and processing in a purpose built, wet sand processing plant.

Chemical Composition			Global	Within M70/1392	SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	TiO ₂ %	LOI%
Classification	Product	Recovery	Million Tonnes	Million Tonnes					
Probable	Arrowsmith-CF400	17%	4.2	4.1	99.6	0.25	0.04	0.03	0.1
	Arrowsmith-C20	34%	8.4	8.2					
	Arrowsmith-C50	17%	4.2	4.1					
	TiO ₂ Concentrate	9%	2.2	2.2			<1%	+2%	
Total Reserve			18.9	18.7					

Table 5: Arrowsmith Central Probable Ore Reserve

⁶ASX announcement of 15 August 2019, "Arrowsmith Central Mineral Resource Estimate Upgrade".

Production Target

The Company has set out in the Arrowsmith Central BFS a production target of **18.9 Mt @ 99.6% SiO₂** as reported in accordance with the JORC Code with **18.7 Mt @ 99.6% SiO₂** contained within the area of the Company's Mining Lease (M70/1392).

Full details are set out in the Arrowsmith Central BFS⁷.

Silica Sand Products

Based on metallurgical test work completed to-date, the silica sand at Arrowsmith Central is readily amenable to upgrading by conventional washing and screening methods to produce a high-purity silica sand product with high mass recoveries. The high-purity silica sand product specifications are expected to be suitable for industries such as glass making and foundry sand.

The plant will produce three saleable silica sand products for different markets. Table 6 shows the particle-size distribution of the products.

Particle Size	Sieve Opening (Mesh / μm Retained)									
	10 / 2mm	20 / 850	30 / 600	40 / 425	50 / 300	70 / 212	100 / 150	140 / 106	200 / 75	AFS No
Arrowsmith-CF400	-	0%	0.5%	44%	38.9%	16.1%	0.5%	-	-	37
Arrowsmith-C20	6.2%	22.2%	30.4%	37.9%	2.9%	0.3%	0.1%	-	-	22
Arrowsmith-C50	-	-	0.3%	31.9%	27.5%	17.3%	13.7%	8.2%	1.1%	49

Table 6: Arrowsmith Central Silica Sand Probable Ore Reserve

In addition to these products, the plant will produce a by-product that contains a concentration of titanium minerals such as rutile and ilmenite which can be sold at a nominal value to a company with specialist equipment for separating mineral concentrate (see Table 5 for summary of TiO₂ concentrate).

Permitting

VRX will submit formal referrals to the Federal DAWE and the State EPA to secure environmental approvals for the development of Arrowsmith Central. Pre-referral meetings with representatives from DAWE and the EPA have provided valuable feedback as to requirements for these referrals.

The Company will also seek to expedite approval for its mine plan and the issue of a mining permit from DMIRS.

⁷ ASX Announcement of 17 September 2019, "Arrowsmith Central BFS and Maiden Ore Reserve"

Material Assumptions

Full details of the bankable feasibility studies for the Arrowsmith North, Arrowsmith Central and Muchea Silica Sand Projects, including material assumptions, are contained in VRX's ASX announcements of 28 August 2019, 17 September 2019 and 18 October 2019, respectively. All such material assumptions continue to apply and have not materially changed from the date of release of the BFSs. Whilst VRX considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will be correct or that the range of outcomes indicated within the studies will be achieved.

Competent Persons' Statements

The information in this document that relates to Arrowsmith North, Arrowsmith Central and Muchea Exploration Results and Muchea Aircore Drilling Area Mineral Resources are based on data collected and compiled under the supervision of Mr David Reid, who is a full-time employee of VRX Silica. Mr Reid, BSc (Geology), is a registered member of the Australian Institute of Geoscientists and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and the activity being undertaken to qualify as a Competent Person under the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr Reid consents to the inclusion of the data in the form and context in which it appears.

The information in this document that relates to Arrowsmith North, Arrowsmith Central and Muchea Auger area Mineral Resources is based on information compiled by Mr Grant Louw who was a full-time employee of CSA Global, under the direction and supervision of Dr Andrew Scogings, who is an Associate of CSA Global. Dr Scogings is a Member of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists. He is a Registered Professional Geologist in Industrial Minerals. Dr Scogings has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code). Dr Scogings consents to the disclosure of information in this report in the form and context in which it appears.

The information in this document that relates to Arrowsmith North, Arrowsmith Central and Muchea Probable Ore Reserves is based on data collected and compiled under the supervision of Mr David Reid, who is a full-time employee of VRX Silica. Mr Reid, BSc (Geology), is a registered member of the Australian Institute of Geoscientists and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and the activity being undertaken to qualify as a Competent Person under the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr Reid consents to the inclusion of the data in the form and context in which it appears.

This announcement has been authorised for release to ASX by Managing Director, Bruce Maluish.

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About VRX Silica

VRX Silica Ltd (**VRX Silica**) (ASX: VRX) has significant silica sand projects in Western Australia.

The Arrowsmith North and Arrowsmith Central Silica Sand Projects, located 270km north of Perth, comprise five granted exploration licences and two granted mining leases. Bankable feasibility studies for both projects have been released, each demonstrating exceptional financial metrics.

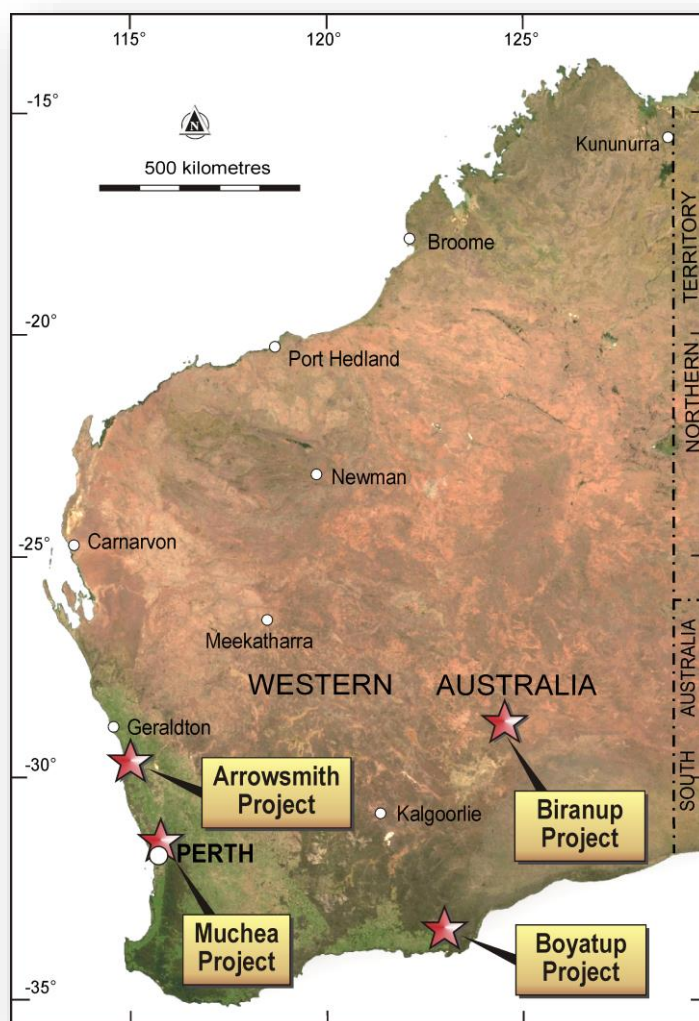
The Muchea Silica Sand Project, located 50km north of Perth, comprises two granted and one application for exploration licences, and one granted mining lease. Muchea is a world-class project with high purity silica sand in situ. A bankable feasibility study for the project has been released demonstrating outstanding financial metrics.

The Boyatup Silica Sand Project, located 100km east of Esperance, comprises two adjacent granted exploration licences. Initial indications are that this project will complement the Arrowsmith and Muchea projects while adding to the range of silica products capable of production.

Proven Management

The VRX Silica Board and management team have extensive experience in mineral exploration and mine development into production and in the management of publicly listed mining and exploration companies.

Project Locations



VRX Silica Limited

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